

Molecular Biology

ACTINOMYCES NAESLUNDII PATHOGENESIS

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Actinomyces naeslundii is a Gram positive rod shaped bacteria that occupies the oral cavity and contributes to plaque biofilm formation. Even though *A. naeslundii* is found in large numbers in the oral cavity there is relatively little known about this bacterium. Like other bacteria that colonize the mouth, *A. naeslundii* catabolizes sucrose and synthesizes polymers of fructose known as fructans. These fructans contribute to plaque ecology and may be implicated in dental caries. Therefore, we examined the growth of *A. naeslundii* in a defined media supplemented with glucose, fructose, sucrose, galactose and lactose. We have found no significant difference in growth of *A. naeslundii* when supplemented with glucose, fructose or sucrose. However, *A. naeslundii* growth declined when the bacteria were grown on media supplemented with galactose and lactose. In addition to the roles of carbohydrates in virulence, we examined the effect of metal ions on the survival of these bacteria. Previous studies isolated the putative Actinomyces metal dependent regulator (*amdR*) from the Actinomyces genomic DNA. In this study, the *amdR* open reading frame was subcloned onto a vector containing a 6 X Histidine tag. This vector containing the Histidine tagged AmdR was inserted into *E. coli*. The recombinant AmdR protein was visualized by SDS-page and has a predicted molecular weight of 27 kilodaltons. This recombinant protein will be used in future studies examining the role of this repressor as a DNA binding protein.

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